

03-02-01

04-15-01 Patent 259/163

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#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Patrick N. Gilles et al.

Serial No.: 09/727,030

Filed: November 30, 2000

Examiner: Not yet assigned

Group Art Unit: Not yet assigned

For: SINGLE NUCLEOTIDE
POLYMORPHIC DISCRIMINATION BY
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SEMICONDUCTOR MICROCHIPS

#### INFORMATION DISCLOSURE STATEMENT

Box Non-Fee Commissioner for Patents Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97–1.98, information relating to the above–identified application is hereby disclosed. The accompanying Form PTO–1449 provides a listing of documents that may be relevant to the subject application.

It is requested that the Examiner fully consider the art cited in the accompanying Form 1449, initial the left-most column of the form adjacent each cited reference, and return a copy for

OC-75342.1 ·	CERTIFICATE OF MAILING
•	(37 C.F.R. §1.10)
United States Postal Service on the da	with any referred to as being attached or enclosed) is being deposited with the ate shown below with sufficient postage as 'Express Mail Post Office To Addresse missioner for Patents, Washington, D.C. 20231.
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Applicants' records. It is further requested that the art be cited on the cover of any patent issuing from the subject application.

In accordance with §1.97(d), this Information Disclosure Statement is being filed before the mailing of a first Office Action on the merits of the above-identified application, and therefore no fee is required. If a first Office Action has been mailed, then please enter this Information Disclosure Statement and charge Lyon & Lyon's Deposit Account No. 12-2475 for any necessary fees.

This statement should not be construed as a representation that more material information does not exist or that an exhaustive search of the relevant art has been made. Nor does this statement constitute an admission by Applicants or Applicants' agent that the information provided herein is necessarily prior art to Applicants' invention. Moreover, Applicants reserve the right to establish the patentability of the claimed invention over any of the listed documents should they be applied thereagainst as references.

Respectfully submitted,

LYON & LYON LLP

Dated: February 28, 2001

PSE/ktl

633 West Fifth Street, Suite 4700 Los Angeles, California 90071-2066 (949) 567-2300

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Enclosures: 36 Prior Art References

### S FOR APPLICANT'S LIST OF PATENTS AND OTHER INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

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Patrick villes, et al.

GROUP: FILING DATE: Not Yet Assigned 11/30/2000

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			U.S. PA	TENT DOCUMENTS		SUB CLASS	FILI! DA
			DATE	NAME	CLASS		1
EXAMINER INITIAL		DOCUMENT NUMBER	4/1976	Hayashi et. al.		OIP	E
	AA	3,950,738	11/1976	Salgo			<b>51</b>
	AB	3,995,190	8/1981	Doughton et al.		FB 28	30
	AC	4,283,773	1/1986	Ranki, et al.		E TRA	DEMINE
	AD	4,563,419	4/1986	Patel		The state of the s	
	AE	4,580,895	4/1986	Goldstein et al.			
	AF	4,584,075	6/1986	Goldstein			
	AG	4,594,135	6/1988	Stabinsky			
	AH	4,751,177	11/1988	MacConnell			
	AI		2/1989	Comfort et al.			
	AJ		3/1989	Mack et al.			7
	Al		4/1989	Newman			****
	A	<b>—</b>	5/1989	Klevan et al.			
	A	M 4,828,979	3/1990	) Pace			
-		AN 4,908,112	11/19	91 Cozzette et al.			
		AO 5,063,081 AP 5,074,977	12/19	OP1 Cheung et al.			
		- 075 077	12/1	Durley, III et al.			
		- 00( 660 /	3/19	92 Lauks et al.			
		200007	3/19			6	
		748		992 Bjornson et al.			
		12(022	6/1	Soane et al.			
-		-112.951	. 9/	1992 Pirrung et al.			
		-164 210	1	1/1992 Hafemann et	al. ATE CONSIDERED	:	
		AW 5,164,319		UA	416 CO11012		with MPEP 609;

EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next OC-75187.1EXAMINER: Page 1 of 5

communication to applicant

# LIST OF PATENTS AND OTHER. AS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

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	ATTY. DOCKET NO.	SERIAL NO.	
	259/163	09/727,030	
	APPLICA		
	Patrick N. Gilles, et al.		
	FILING DATE:	GROUP:	
	11/30/2000	Not Yet Assigned	

(Use several sheets if necessary)

		T		T		
	AX	5,166,063	11/1992	Johnson		
	AY_	5,200,051	4/1993	Cozzette et al.		
	AZ	5,202,231	4/1993	Drmanac et al.		
	BA	5,219,726	6/1993	Evans	01	
	ВВ	5,227,265	7/1993	DeBoer et al.	FEB 2	8 200 E
	BC	5,234,566	8/1993	Osman et al.	PART I	200
	BD	5,242,797	9/1993	Hirschfeld	PER TADA	MARKO
	BE	5,304,487	4/1994	Wilding et al.		
	BF	5,312,527	5/1994	Mikkelsen et al.		
	BG	5,433,819	7, 1995	McMeen		
	вн	5,434,049	7/1995	Okano et al.		
	BI	5,436,129	7/1995	Stapleton		
,	ВЈ	5,445,525	9/1995	Broadbent et al.		
	BK	5,464,517	11/1995	Hjertén et al.		
	BL	5,468,646	11/1995	Mattingly et al.		
	ВМ	5,516,698	5/1996	Begg et al.		
	BN	5,527,670 ~	6/1996	Stanley		
	во	5,552,270 ~	9/1996	Khrapko et al.		
	BP	5,593,838 /	1/1997	Zanzucchi et al.		
	BQ	5,605,662	2/1997	Heller et al.		
	BR	5,632,957	5/1997	Heller et al.		
	BS	5,653,939	8/5/1997	Hollis et al.		
	BT	5,660,701	8/26/1997	Grushka et al.	,	
	BU	5,681,751	10/1997	Begg et al.		
	BV	5,750,015	5/1998	Soane et al.		

OC-75187.1EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant

### LIST OF PATENTS AND OTHER THAMS FOR APPLICANT'S **INFORMATION DISCLOSURE STATEMENT**

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FILING DATE:

11/30/2000

SERIAL NO. 09/727,030

Not Yet Assigned

ATTY. DOCKET NO.

GROUP:

(Use several sheets if necessary)

	BW	5,770,365	6/1998	Lane et al.	
	BX	5,780,233	7/1998	Guo et al.	
·	BY	5,849,489	12/1998	Heller	
	BZ	5,853,993	12/1998	Dellinger et al.	OIPE
<del></del>	CA	6,013,166	1/2000	Heller	3.0 2000
	CB_	6,017,696	1/2000	Heller	
	СС	6,048,690	4/2000	Heller et al.	RADEMANTS
	CD	6,051,380	4/2000	Sosnowski et al.	
	CE	6,068,818	5/2000	Ackley et al.	
	CF	6,099,803	8/2000	Ackley et al.	
	CG	6,071,394	6/2000	Cheng et al.	
	СН	6,129,828	10/2000	Sheldon, III et al.	

			FOREIC	IN PATENT DOCUMENTS				
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS	LATION NO
	CI	0228075	8/1987	EP (Dattagupa et al.)				
	CJ	2247889	3/1992	GB (Stanley)				
	CK	WO95/07363	3/1995	PCT (Konard)				
	CL	WO90/01564	2/1990	PCT (Adams et al.)				
	СМ	WO89/01159	2/1989	PCT (Cornell et al.)				
	CN	WO93/22678	11/1993	PCT (Hollis)				
	СО	WO86/03782	7/1986	PCT (Malcom et al.)				
	СР	WO 89/10977	11/1989	PCT (Southern)				
	CQ	WO88/08528	11/1988	PCT (Stanbro, et al.)				
	CR	WO92/04470	3/1992	PCT (Stanley)				

OC-75187.1EXAMINER:

**DATE CONSIDERED:** 

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# LIST OF PATENTS AND OTHER THANS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

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	ATTY. DOCKET NO.	SERIAL NO.	
	259/163	09/727,030	
	APPLICA:		
	Patrick N. Gilles, et al.		
	FILING DATE:	GROUP:	
	_11/30/2000	Not Yet Assigned	

(Use several sheets if necessary)

						<del></del>
	CS	WO98/28444	7/1998	PCT (Mirzabekov, et a.)		
	СТ	WO97/12030	4/1997	PCT (Heller, et al.)		
	CU	WO98/51819	9/1999	PCT Sosnowski		
	CV	WO 98/10273	3/1998	PCT Sosnowski et al.	OLPE	_
	CW	WO96/01836	1/1996	PCT (Heller et al.)	//	<b>G</b>
	CX	WO 98/10277	3/1998	PCT (Sheldon)	FB 28 2	(שַבּ
ļ	CY	WO 99/42558	8/1999	PCT (Ackley, et al.)	THADEN	MET ST
	CZ	WO 01/06496 A1	1/2001	PCT (Havens et al.)	THADE	
	DA	WO 00/61803	10/2000	PCT (Nerenbert, et al.)		
	DB	WO 98/01758	1/1998	PCT (Kovacs)		
	DC	WO 99/29711	6/1999	PCT (Sosnowski et al.)		
	DD	WO 00/37163	6/2000	PCT (Cheng, et al.)		
	DE	WO 00/58522	10/2000	PCT (Giles, et al.)		
	DF	WO 00/32744	6/2000	PCT (Ackley, et al.)		
	DG	WO 98/24544	6/1998	PCT (Ackley, et al.)		
	DH	WO 99/43853	9/1999	PCT (Sosnowski)		
	DI	2156074	10/1985	UK (Palva et al.)		
	ÐJ	57087	87	Yugoslavia (Drmanac)		

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)
DK	Anand and Southern "Pulsed Field Gel Electrophoresis," Gel Electrophoresis of Nucleic Acids - A Practical Approach, 2d. ed., D. Rickwood and B.D. Hames (new York: IRL Press 1990), pps. 101-123
DL	Anderson and Young, "Quantitative Filter Hybridization, "Nucleic Acid Hybridization - A Practical Approach, Eds. B.D. Hames and S.J. Higgins (Washington, D.C.: IRL Press 1985) pp. 73-111
DM	Bains, "Setting a Sequence to Sequence a Sequence," Bio/Technology, 10:757-758 (1992)
DN	Barinaga, "Will 'DNA Chip' Speed Genome Initiative?", Science, 253:1489 (1991)
DO	Beattie et al., "Genosensor Technology," <u>The 1992 San Diego Conference: Genetic Recognition</u> , pp 1-5 (Nov. 1992)

OC-75187.1EXAMINER:	DATE CONSIDERED:
	•

EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant

#### LIST OF PATENTS AND OTHER NEWS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO. 259/163

SERIAL NO 09/727,03

FEB 2 8 2001

APPLICANT: Patrick N. Gilles, et al.

FILING DATE:

11/30/2000

GROUP:

Not Yet Assign

(Use several sheets if necessary)

 ,	
DB	Beltz et al., "Isolation of Multigene Families and Determination of Homologies by Filter Hybridization Methods,"
 DP	Methods in Enzymology, 100:266-285 (1983)  Brown et al. "Electrochemically Induced Adsorption of Radio-Labelled DNA on Gold and HOPG Substrates for
DQ	STM Investigations." Ultramicroscopy, 38 1991, 253-264
 	Conner et al., "Detection of Sickel Cell $\beta^3$ - Globin Allelle By HybridizationWith Synthetic Oligonucleotides,"
DR	Proc. Natl. Acad. Sci. USA, 80:278-282 (1983)
 - DK	Drmanac et al., "Sequence of Magabase Plus DNA by Hybridization: Theory of the Method," Genomics, 4:114-
DS	128 (1989)
 - 100	Drmanac et al., "DNA Sequence Determination by Hybridixation: A Strategy for Efficient Large-Scale
DT	Sequencing," Science, 260: 1649-1652 (1993)
 -   21	Eggers et al. "Biochip Technology Development," BioChip Technology Development, Lincoln Laboratory
DU	Technical Report 901, Nov. 9, 1990
 120	100111100111011111111111111111111111111
DV	Fodor et al., "Multiplexed Biochemical Assays With Biological Chips," Nature, 364:555-556 (1993)
	, 1
DW	Fodor et al., "Light-Directed, Spatially Addressable parallel Chemical Synthesis," Science, 251: 767-773 (1992)
	Gills, et al. "Single nucleotide polymorphic discrmination by an electronic dot blot assay on semiconductor
 DX	microchips" Nature Biotechnology Vol 17 April 1999 pp 365-370
	Gryaznov et al. "Enhancement of selectivity in recognition of nucleic acids via chemical autoligation," Nucleic
 DY	Acids Research, 1994, Vol. 22 No. 12 pp 2366-2369 (1994 University Press)
 DZ_	Horejsi, "Some Theoretical Aspects of Affinity Electrophoresis," Journal of Chromatography, 178:1-13 (1979)
	Horejsi et al., "Determination of Dissociation Constants of Lectin Sugar Complexes by Means of Affinity
 EA	Electrophoresis, Biochimica at Biophysica Acta, 499:200-300 (1977)
EB	Kakerow et al., "A Monolithic Sensor Array of Individually Addressable Microelectrodes," Sensors and Actuators
 EB	A, 43 (1994) 296-301
EC	Mathews, Kricka. "Analytical Strategies For The Use of DNA Probes." Analytical Biochemistry, 169, 1988, 1-25
LC .	Palecek. "New Trends in Electrochemical Analysis of Nucleic Acids." <u>Bioelectrochemistry</u> and <u>Bioenergetics</u> , 20,
ED	1988, 179-194
122	Ranki et al., "Sandwhich Hybridization as a Convenient Method for the Detection of Nucleic Acids in Crude
EE	Samples," Gene, 21:77-85 (1983)
	Saiki, "Amplification of Genomic DNA," PCR Protocols: A Guide to Methods and Applications, (Academic Press,
EF	Inc. 1990), pp 13-20
	Southern et al., "Analyzing and Comparing Nucleic Acid Sequences by Hybridization to Arrays of
EG	Oligonucleotides Evaluation Using Experimental Models," Genomics, 13:1008-1017 (1992)
 	Sosnowski et al. "Rapid determination of single base mismatch mutations in DNA hybrids by direct electric field
EH	control," <i>Proc. Natl. Acad. Sci, USA</i> Vol. 94, pp. 1119-1123, February 1997 Biochemistry
	Strezoska et al., "DNA Sequencing by Hybridization: 100 Bases Read by a Non-Gel Based Method," Proc. Natl.
EI	Acad.Sci. USA, 88:10089-93 (1991)
 	Wallace et al., "Hybridization of Synthetic Oligodexribonucleotides to φ x 174 DNA: The Effect of Single Base
EJ	Pair Mismatch," Nucleic Acid Res., 6:3543-3557 (1979)
EK	Washizu, "Electrostatic Manipulation of Biological Objects," Journal of Electrostatics, 25:109-123 (1990)
	Washizu and Kurosawa, "Electrostatic Manipulation of DNA in Microfabricated Structures," IEEE Transactions
EL	on Industry Applications, 26:1165-1172 (1990)

OC-75187.1EXAMINER:	DATE CONSIDERED:
•	· ·

EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant